WASHCOUNTS

2026 State Competition
Target Round Problems 1 & 2

Name _____

School _____

Chapter _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of eight problems, which will be presented in pairs. Work on one pair of problems will be completed and answers will be collected before the next pair is distributed. The time limit for each pair of problems is six minutes. The first pair of problems is on the other side of this sheet. When told to do so, turn the page over and begin working. This round assumes the use of calculators, and calculations also may be done on scratch paper, but no other aids are allowed. All answers must be complete, legible and simplified to lowest terms. Record only final answers in the blanks in the left-hand column of the problem sheets. If you complete the problems before time is called, use the time remaining to check your answers.

Problem 1	Problem 2	Scorer's Initials

Problem Development Committee

Kaiyuan Mao ▪ Ryan Tang ▪ Wesley Wu ▪ Vivaan Mukherjee ▪ Alex Yang

Problem Authors

James Yang ▪ Laura Wang ▪ Hanbin Wang ▪ Jaelyn Park ▪ Elynna Wu
William Xin ▪ Patrick Sun ▪ Bruce Shu ▪ Ryan Chen

Special thanks to Jason Lee for providing the competition templates.

0 1 2 3 4 5 6 7 8 9

1. _____ parts A project consists of 12 equal parts and is worth 600 points. Alex receives either full credit or no credit for each part. What is the least number of parts she must complete to earn at least 450 points?

2. _____ What is the least positive multiple of 12 that has exactly 12 positive factors?

WASHCOUNTS

2026 State Competition
Target Round Problems 3 & 4

Name _____

School _____

Chapter _____

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Problem 3	Problem 4	Scorer's Initials

Problem Development Committee

Kaiyuan Mao ▪ Ryan Tang ▪ Wesley Wu ▪ Vivaan Mukherjee ▪ Alex Yang

Problem Authors

James Yang ▪ Laura Wang ▪ Hanbin Wang ▪ Jaelyn Park ▪ Elynna Wu
William Xin ▪ Patrick Sun ▪ Bruce Shu ▪ Ryan Chen

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3. _____ m^2

A rectangular garden measuring 8 meters by 15 meters is perfectly enclosed by a circular fence so that each of the garden's four corners touches the fence. What is the area of the region inside the fence but outside the garden? Express your answer as a decimal to the nearest hundredth.

4. _____

William places the integers $1, 2, 3$, and 4 into the cells of a 2×2 grid with one number per cell. For each arrangement, he computes its *score* by adding the products of all pairs of numbers in adjacent cells. After testing every possible arrangement, what is the sum of all distinct possible scores?

WASHCOUNTS

2026 State Competition
Target Round Problems 5 & 6

Name _____

School _____

Chapter _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Problem 5	Problem 6	Scorer's Initials

Problem Development Committee

Kaiyuan Mao ▪ Ryan Tang ▪ Wesley Wu ▪ Vivaan Mukherjee ▪ Alex Yang

Problem Authors

James Yang ▪ Laura Wang ▪ Hanbin Wang ▪ Jaelyn Park ▪ Elynna Wu
William Xin ▪ Patrick Sun ▪ Bruce Shu ▪ Ryan Chen

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5. _____ factors How many positive integer factors does $1313^2 - 1212^2 - 404^2$ have?

6. _____ Equilateral triangle ABC has side length 8. Rectangle BCDE is constructed outside the triangle so that BC is a side of the rectangle and BE = $2\sqrt{3}$. Vertex A is folded to the midpoint of DE. What is the area of the figure after the fold? Express your answer in simplest radical form.

WASHCOUNTS

2026 State Competition
Target Round Problems 7 & 8

Name _____

School _____

Chapter _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Problem 7	Problem 8	Scorer's Initials

Problem Development Committee

Kaiyuan Mao ▪ Ryan Tang ▪ Wesley Wu ▪ Vivaan Mukherjee ▪ Alex Yang

Problem Authors

James Yang ▪ Laura Wang ▪ Hanbin Wang ▪ Jaelyn Park ▪ Elynna Wu
William Xin ▪ Patrick Sun ▪ Bruce Shu ▪ Ryan Chen

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7. manti-cores

In a magical menagerie, there are three types of creatures: Griffins, Manticores, and Sphinxes. Griffins have 4 legs and 2 wings, Manticores have 4 legs and 4 wings, and Sphinxes have 2 legs and 2 wings. A caretaker counts exactly 25 creatures in total, along with exactly 84 legs and exactly 64 wings. How many Manticores are in the menagerie?

8. _____

A factory produces 2×2 metal plates with one of the four unit squares removed, forming an L-shaped piece. The plates are not allowed to be rotated, and each of the four possible missing corners is equally likely. Kaiyuan randomly selects four plates. What is the probability that the four plates can be arranged without overlap to exactly cover a 4×3 rectangle? Express your answer as a common fraction.